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# MEDICAL NEWS LETTER

Editor - Captain L. B. Marshall, MC, USN (RET)

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## Policy

The U. S. Navy Medical News Letter is basically an official Medical Department publication inviting the attention of officers of the Medical Department of the Regular Navy and Naval Reserve to timely up-to-date items of official and professional interest relative to medicine, dentistry, and allied sciences. The amount of information used is only that necessary to inform adequately officers of the Medical Department of the existence and source of such information. The items used are neither intended to be nor susceptible to use by any officer as a substitute for any item or article in its original form. All readers of the News Letter are urged to obtain the original of those items of particular interest to the individual.

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## Notice

Due to the critical shortage of medical officers, the Chief, Bureau of Medicine and Surgery, has recommended, and the Chief of Naval Personnel has concurred, that Reserve medical officers now on active duty who desire to submit requests for extension of their active duty for a period of three months or more will be given favorable consideration.

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## Residency Training in the Navy•

Applications for residency training are requested from Regular officers and those Reserve officers who have completed their obligated service under the Universal Military Training and Service Act, as amended. Reserve officers with obligated service may become eligible for training upon transfer to the Regular Navy.

Training is available for Regular officers in all of the major medical specialties. It is available for Reserve officers in Pathology, Orthopedic Surgery, Obstetrics and Gynecology, Pediatrics, Urology, Anesthesiology, Otolaryngology, Dermatology and Syphilology, Ophthalmology, and Internal Medicine.

Members of the current intern class who are eligible and have been accepted for training may start their residency immediately on completion of their internship. It is now the desire of the Bureau of Medicine and Surgery to continue a resident in training without interruption until he has completed the formal training requirements leading to certification by an American Specialty Board. This procedure will be strictly adhered to in every case where the demands of the service permit, and providing the officer shows satisfactory progress. (ProfDiv, BuMed)

## Cervical Disk, Shoulder-Arm-Hand Syndrome

Pain in the shoulder, arm, hand, and neck is a common syndrome that may be caused by many underlying conditions. The age of the patient, the nature of the pain, and the occurrence of trauma to the shoulder and neck may indicate the cause and treatment. Because of the many factors involved in pain of this type, careful history and examination are necessary. This type of pain frequently is relieved by conservative treatment; however, in view of the fact that a protruded intervertebral disk in the cervical region, or some other intra-spinal lesion, may play a part in producing such pain, these factors should be kept in mind.

The shoulder-hand syndrome may follow any condition that produces pain in the shoulder, for it is the pain that initiates the chain of events making up this syndrome. In the previously mentioned report by Askey, the shoulder pain was attributed to coronary occlusion. Just as likely, it might follow tears in the rotator cuff of the shoulder, fracture of the humerus with prolonged immobilization, intramedullary tumors of the spinal cord, protruded cervical intervertebral disks, disease of the gallbladder, or periarteritis nodosa. The first prerequisite is pain in the shoulder, regardless of its cause. Stiffness of the shoulder develops later. This may occur at the onset of pain or it may follow pain after varying periods. The major cause of this stiffness appears to be disuse. The patient tends to avoid any motion of the joint to prevent the occurrence or intensification of pain. Disuse and stiffness in turn lead to more pain that further intensifies the disuse.

After the onset of pain and stiffness, there may be a latent period of days to months before vasomotor and trophic changes appear in the hand. At first these changes are mild, consisting of painful swelling involving the entire hand, with stiffness of the skin and loss of the normal cutaneous wrinkles. Vasodilation usually is present in this early phase, with increased surface temperature and sweating. If the process goes unchecked, vasodilatation gradually disappears, the hand becomes pale and dry, sometimes cyanotic, the skin is stretched taut, and trophic changes appear. In the final stages the small muscles of the hand become atrophied, and deformities and Dupuytrenlike contractures appear. This is the chain of events making up the shoulder-hand syndrome if one could follow a case from beginning to end. The changes seen at the various stages of the syndrome differ greatly and the incautious observer might consider different stages as separate entities, failing to appreciate that these changes appear to be part of the same neurophysiologic process.

The best way to ascertain the cause of pain in the shoulder is by means of a carefully taken history. If the cause of the pain is not suggested by the history, the most logical place to seek the cause is in the local region about the shoulder.

Etiology is discussed under local causes, lesions of the rotator cuff, vertebral lesions, lesions of the spinal cord, lesions of the brachial plexus, thoracic lesions, and peripheral vascular disease.

If the mechanism initiated by the primary disorder is allowed to operate long enough, it becomes self-sustaining, even though the original source of the pain in the shoulder is removed. Thus, it is important that the physician correctly assess the situation early in the course before this vicious circle has become established. The most efficacious and simplest way is to diagnose correctly the primary disorder and initiate appropriate treatment.

If a tear in the rotator cuff is found, the treatment of choice is surgical repair. If, for sound reasons, operation is not indicated, conservative measures of rest, administration of cortisone, corticotropin (ACTH) or hydrocortisone (Hydrocortone) and graduated exercise can be carried out. If a protruded cervical intervertebral disk is found to be the initial cause of the painful shoulder, conservative treatment consisting of heat, massage, and traction on the neck is given a fair trial. If no improvement ensues or if the neurologic deficit progresses, surgical intervention is indicated. If, rather than a protruded disk, there is found to be, as the result of arthritis, a ridge on a vertebra compressing the nerve root, or if osteoarthritic narrowing of the intervertebral foramen is giving rise to the root pain, surgical decompression can be carried out, with removal of the lamina on the involved side. Enough bone should be removed to allow adequate decompression of the nerve root as it passes through the intervertebral foramen. Intramedullary or extramedullary tumors of the spinal cord can be successfully removed in the majority of cases by use of modern neurosurgical technics.

Obviously, it is beyond the scope of this presentation to consider the specific treatment of each of the primary disorders listed. Once the correct diagnosis is made, therapy can be readily carried out. It is important to re-emphasize that, once the pain in the shoulder becomes established, it leads to disuse and stiffness that in turn lead to more pain. Therefore, even though the initial cause of the pain be removed, one is still faced with the problem of treating the residual painful stiff shoulder, plus the added changes in the hand, if such have appeared.

When confronted with a patient exhibiting any stage of this syndrome from the earliest, with only pain and stiffness in the shoulder, to the latest, with severe atrophic changes in the hand, the physician must realize that he is dealing with a personality that is frequently refractory to treatment. Many of these patients do not religiously carry out the recommended exercises and medication. Because their tolerance to pain is low and the exercises temporarily increase the pain, they are loath to carry out the exercises unless constantly supervised and encouraged. The physician should accept this responsibility and set up a rigid routine of graduated physical therapy.

The patient should be seen frequently; the progress, or lack of it, should be assessed, and encouragement given freely. Because of this dependency, use of narcotics always should be avoided but salicylates can be given to alleviate the pain, along with heat and massage. This regimen, when sympathetically supervised, will bring about satisfactory results in the majority of cases if it is started early in the course of the syndrome before the dystrophic changes have become severe. If this conservative course is given a fair trial and little or no improvement is seen, and particularly if the reflex sympathetic dystrophic changes are advancing, more vigorous management is indicated. (Craig, W. McK., and Witt, J. A., Cervical Disk, Shoulder-Arm-Hand Syndrome: Postgrad. Med., 17:267-279, April 1955)

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## Herniation of the Liver

Herniation of the liver through the right leaf of the diaphragm, though still rare, is being reported with increasing frequency. Although Hedblom found only 14 instances of liver herniation in 857 cases of diaphragmatic hernia, and only 6 additional cases had been reported up to 1951, several case reports have appeared since then. The combination of increasingly severe trauma associated with automobile accidents, and the more expeditious and adequate treatment of the attendant shock, with survival of the patient, makes it likely that this condition will be increasingly encountered. Likewise, chest surveys of the population and routine hospital admission films will undoubtedly bring to light many previously undiagnosed and as yet asymptomatic cases. The position and appearance of the herniated liver are such as to suggest an intrathoracic tumor, either of the lung or diaphragm, and the diagnosis itself, though suspected, may be difficult to confirm without thoracotomy.

The etiological factor in all the cases treated by the authors was severe trauma to the thorax, usually associated with multiple rib fractures. Although the history of trauma may be readily obtained, even after many years, in one instance only, after close questioning, was this information elicited. Congenital defects in the right leaf of the diaphragm may allow the liver to herniate through it, and such cases have been reported. The probabilities are that such herniations would produce symptoms and be discovered long before the individual reached adult life.

It is interesting to note how long the patient can remain symptom-free after the trauma occurs. The time interval between the traumatic episode and surgery varied in this series from 5 months to 33 years. It may be that the onset of symptoms, long after herniation has occurred, is caused in part by the descent and flattening of the diaphragm which occurs with aging and accompanying emphysema.

A careful history inquiring as to the possibility of severe trauma is most important. Frequently, the injury has taken place so many years ago that the patient fails to recall it, or feels that it has no connection with his present complaints. The presence of a mass as seen by x-ray for a period of years, which has been relatively asymptomatic if not entirely so, should also make one suspicious of this possibility. In every instance, a characteristic picture of a circumscribed, rounded, mushroomlike mass lying above the diaphragm and intimately associated with the right heart border is seen on x-ray. It has been suggested by numerous authors that pneumoperitoneum is an excellent tool in the diagnosis of this condition. Certainly, if pneumoperitoneum is induced and air enters the thorax, a rent must be present in the diaphragm. It must be emphasized, however, that if the condition is of longstanding and a tight constriction is present around the herniated liver, no air can pass through into the chest. Likewise, dense adhesions between the diaphragmatic and visceral pleura may also seal off the communication by forming a sac. It is, therefore, stressed that while this test may be of positive value in demonstrating a communication between the abdomen and thorax, the absence of such communication does not in any way exclude the diagnosis.

The treatment of this condition is the same as that for any other hernia. A thoractomy should be performed, the liver returned to the abdominal cavity, and the defect repaired. This is a simple procedure, does not require prolonged hospitalization, and definitely establishes the diagnosis. The symptomatic case requires immediate surgery because of the possibility of strangulation.

The authors do not believe that this lesion should be allowed to remain because it is asymptomatic at the time of discovery. Their experience, as well as that of others, has shown that symptoms do become apparent and troublesome years after the lesion is first found. (Hollander, A. G., and Dugan, D. J., Herniation of the Liver: J. Thoracic Surg, 29: 357-367, April 1955)

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## Skeletal Lesions in Coccidioidomycosis

Coccidioidomycosis, for several decades recognized as an endemic infectious disease in the southwestern portion of the United States, is being recognized as a world wide affliction. Its spread in this country is due primarily to contraction of the disease by members of the Armed Forces while stationed in the endemic area during World War II. Bone and joint involvement during the disseminated stage of the disease is the exception rather than the rule. Its occasional appearance, however, demands that

the orthopedic surgeon be sufficiently familiar with its manifestations and behavior to recognize the condition when he is confronted with it.

Coccidioidomycosis is a deep mycotic infection caused by the fungus Coccidioides immitis. The initial, or primary, phase is usually a self-limited pulmonary infection. This may be a comparatively innocuous, subclinical condition. It is sometimes accompanied by chills, fever, malaise, headache, and multiple joint pains. Symptoms and signs of pleural involvement are frequently observed, but many patients develop no clinical symptoms. After an interval of two to six weeks, lesions may appear in other organs, indicating the onset of the secondary or disseminated phase of disseminated coccidioidal granuloma.

The portal of entry is almost always the respiratory tract. There may be occasional entrance through abrasions of the skin. The digestive juices are believed to destroy the spores. The incubation period is from 10 to 40 days. Clinically and by x-ray, the primary phase of the disease greatly resembles pneumonia with hilar adenopathy, except that it usually clears up in about three weeks. Within a week or two after the onset of symptoms, allergic manifestations develop and the skin test becomes positive. Usually, some minimal pulmonary scarring remains after the primary phase has resolved. This may be cavitation, calcification, pleural effusion, or a small area of fibrosis. With the acquisition of sensitivity, as evidenced by the positive skin test, approximately 20% of the patients develop erythema nodosum or erythema multiforme.

The granulomatous phase is the result of a dissemination of the pulmonary infection. It is believed by Smith to occur in less than 0.2% of cases. The spread is endogenous by way of blood stream and lymphatics and may involve almost any organ or tissue. It is usually manifest within a few months of the primary infection but occasionally delays its appearance until after the lapse of several years. Immunity is conferred by a single infection and is generally thought to be permanent. The endemic areas are southern California, Arizona, New Mexico, Texas, Nevada, Utah, northern Mexico, Venezuela, and the Chaco area of Argentina.

The bone lesions exhibit a predilection for the bony prominences--tibial tubercles, malleoli, patella, trochanter, ends of clavicle, olecranon, and epicondyles. Involvement of practically every bone and of all the joints except shoulder and temporomandibular has been observed.

Bony lesions commonly commence near the ends of the long bones (epiphysis, metaphsis, or diaphysis). Their spread is not significantly retarded by the epiphyseal plate. Extension into adjacent joints sometimes occurs. Erosion of joint cortices may be observed. Soft tissue abscesses are usual. Joint lesions may be primarily synovial or subcortical. These may extend to bone or soft tissues. Multiple bone lesions are encountered more often than single lesions.

Active pulmonary lesions are infrequently present. More commonly, evidence of old, now quiescent, pulmonary involvement is discerned. Cavitation, pleural thickening, and parenchymal cyst formation, sometimes with calcification, are not unusual. The mediastinal and retroperitoneal nodes are often involved.

Practically all organs except the gastrointestinal tract may be invaded. The symptoms and signs will vary according to the organs involved.

Diagnosis of coccidioidomycosis can be made positively only upon identification of the organisms. Typically, there is a history of the patient's having been in an endemic area, the southwestern portion of the United States, perhaps for only a few hours. From one to four weeks later, symptoms and signs of pulmonary disease develop, Characteristically, but not always, the respiratory infection clears up spontaneously in a few weeks. During this period the allergic reaction occurs and the skin test becomes positive.

Development of the granulomatous, or disseminated, phase of the disease cannot be distinctly separated from the primary phase. The granulomatous spread may become manifest by the development of abscesses in practically any organ or system. It is usually the soft tissue abscess, developed by extension from the bone lesion, which calls attention to the osseous infection. The roentgen changes observed in bone, simulating as they do those seen in tuberculosis, are not diagnostic. The bone lesions may also mimic the changes of blastomycosis, metastatic carcinoma, or osteomyelitis.

A positive skin test is fairly reliable, but only six weeks after infection. A negative skin test early, followed by a positive skin test later, is conclusive. Increase of the sedimentation rate is of little value diagnostically but of some consequence in determining the activity of the disease over a period of time.

No specific therapy is known. The use of prodigiosin in one hospital for the past five years has not given conclusive results and is still being investigated. A regimen similar to that used in the treatment of tuberculosis is adhered to (except that streptomycin and the more recent nicotinic acid derivatives have no specificity for Coccidioides immitis). Surgery is utilized when indicated, as in any other granulomatous infection. (Mazet, R. Jr., Skeletal Lesions in Coccidioidomycosis: Arch. Surg., 70: 497-506, April 1955)

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## Correction

In the second item under "Commendations," Vol. 25, No. 9, page 20, lines 4 and 5, "Naval Medical School" should read "Naval Dental School."

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## Patent Ductus Arteriosus

With increasing experience in the diagnosis of patent ductus arteriosus, it has become evident that wide variations exist in the physiological and pathological manifestations of this congenital anomaly.

The purpose of this study was to re-evaluate the roentgen manifestations of patent ductus in the light of accumulated observations and to correlate them with the concomitant physiological and anatomic changes. It was also desired to discover the certainty with which this diagnosis can be made from plain films and to determine the correlation between the roentgen findings, size of the ductus, and age of the patient.

Of the 100 patients studied, 28 were males and 72 were females. The female to male ratio of 2.5:1 compares favorably with that of Donovan et al., who reported a ratio of 2:1.

The patients ranged in age from 5-1/2 months to 36 years with a mean age of 6-1/2 years. Sixty-four percent of the patients in this group were below the age of 10 years. This is somewhat in contrast with the group of Donovan et al., in which the age range was from one year to 36 years but the mean age was 11 years.

Ductus diameters were given in all but 3 cases and lengths in all but 10 cases. Diameters ranged from 2 to 20 mm. and the lengths from 3 to 25 mm.

The roentgenograms of the 100 cases of patent ductus arteriosus were studied and their salient features tabulated. Cardiac enlargement was present in 73% of the cases. The chambers most frequently enlarged were the left ventricle (68%) and the left auricle (67%). Enlargement of the left auricle, when present, was found to be of some value in differentiating patent ductus arteriosus from other congenital cardiac abnormalities. Forty-two percent of the patients showed roentgen evidence of right ventricular enlargement. This was observed in those patients with presumed pulmonary hypertension as a result of a large ductus or constriction of the peripheral branches of the pulmonary arteries. One patient with a large right ventricle had persistent cyanosis from birth and a large ductus. Seven patients had cyanosis of varying degrees.

The authors' individual interpretations of degree of abnormality of the heart and major vessels, as shown roentgenographically, differed considerably. This was particularly true of the estimation of the size of the hilar shadows and pulmonary vascularity where the disagreement averaged 24%. Differences in estimation of cardiac and chamber enlargement averaged 15%.

Fifty percent of the electrocardiograms were interpreted as being abnormal. Thirty percent showed left ventricular hypertrophy, 7% right ventricular hypertrophy, and 4% interventricular blocks. Cardiac and

chamber enlargement was observed on the roentgenograms in a larger number of patients than the electrocardiogram would indicate.

The main pulmonary artery was enlarged in 68% of the cases, and its branches in 59%. As would be expected, the pulmonary veins were engorged in most cases in which the pulmonary arteries were enlarged.

The "infundibulum sign" was found to be unreliable in the experience of the authors. It was detected in only 25% of the cases, and similar alterations of the aortic shadow were found in an independent survey of normal chests in the same age groups.

The cardiac shadow was considered to have an appearance "typical" of patent ductus arteriosclerosis in 41% of the cases. In the age group from 5-1/2 months to 3 years, only 24% were considered typical, whereas 58% between the ages of 10 and 36 appeared "typical."

The size of the ductus was found to correlate well with the degree of cardiac enlargement and pulmonary vascularity in the various age groups. Below the age of 4 years, all patients had cardiac enlargement. In the older age groups, a ductus of greater diameter was required to produce the same relative degree of cardiac and vascular enlargement than in the younger children. (Keats, T. E., and Steinbach, H. L., Patent Ductus Arteriosus: Radiology, 64: 528-536, April 1955)

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## Chronic Auricular Flutter

Auricular flutter is an arrhythmia well known as an electrocardiographic entity. It is most often discovered upon study of patients with very rapid heart action, especially in rheumatic cardiacs and thyrocardiacs, and in patients with recent myocardial infarction. It is generally indicated, particularly in the American literature, that flutter lies between auricular tachycardia and auricular fibrillation in duration, incidence of organic heart disease, and rapidity of auricular rate.

Approximately 90% of the cases of auricular flutter are associated with organic heart disease. This compares with an organic heart disease incidence of 95% in auricular fibrillation, and 50% in paroxysmal auricular tachycardia. The cardiac conditions most frequently found are hypertensive arteriosclerotic heart disease (40%) and rheumatic heart disease (30%). Thyrotoxicosis is reported in about 3%. Approximately 20% of the cases reported have shown enlarged hearts for which no specific etiology was identified.

Although the diagnosis of auricular flutter can be suspected, the final arbiter is the electrocardiogram. The characteristic electrocardiographic findings are: (1) absolute regularity of the auricular waves; (2) demonstration in any one lead that the iso-electric period does not exceed 0.04 second;

(3) atrial rate of 200 to 360 (as compared with a rate of 160 to 240 in paroxysmal auricular tachycardia); ventricular rate usually a fraction of the atrial, most commonly one-half or one-quarter, occasionally equal in rate to the atrial and rarely as little as one-sixth as rapid (except in cases with complete heart block where the ventricular rate may be only one-tenth of the auricular rate); (4) "F" or flutter waves, which represent auricular activity; these often have a typical configuration in one or more leads described as sawtooth.

In some cases the diagnosis of auricular flutter can be established only by an esophageal electrocardiogram which most accurately reveals auricular activity.

The first objective in patients with auricular flutter is to reduce the ventricular rate so that the myocardium may function efficiently. This can be accomplished rapidly by digitalis in almost all cases. By its action on the AV node, digitalis can increase AV block and prevent the rapidly discharging auricles from stimulating the ventricles to more than 60 to 90 beats per minute.

The second objective in treatment is the restoration of regular sinus rhythm. In 50 to 60% of the cases, digitalis will restore regular sinus rhythm, but even when it fails to revert the rhythm, digitalis will be of great benefit by slowing the ventricular rate. Quinidine, on the other hand, will slow the rate only when it succeeds in converting the rhythm to regular sinus rhythm. This evidently occurs because the effect of quinidine on the auricle (increasing refractory period more than conduction time) is greater than its action on the AV node. If quinidine prolongs conduction time more than it increases the refractory period, it may cause acceleration of the ventricular rate by reducing the auricular rate to one at which the ventricle can respond at each stimulation. Because of the possibility that digitalis will slow the ventricular rate, even if it does not restore regular sinus rhythm, while quinidine will not slow and may even speed the ventricular rate if it fails to induce sinus rhythm, most workers prefer to digitalize the patient with flutter, and use quinidine only if digitalis has failed to alter the rhythm. A few cases fail to revert to regular sinus rhythm after digitalis and quinidine. These constitute a considerable portion of the cases of chronic flutter. (Hoffman, J. B., and Pomerance, M., Chronic Auricular Flutter; Ann. Int. Med., 42: 885-900, April 1955)

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## Adams-Stokes Syndrome

The syndrome of syncope with slow pulse rate was first observed and described accurately by Morgagni in 1767. Adams observed it in 1827, and Stokes published four case reports in 1846. Since that time, syncopal attacks,

associated with heart block, have been known as the Adams-Stokes or Morgagni-Adams-Stokes syndrome.

Until recently, it was generally believed that these attacks occur only when the ventricular diastole is sufficiently prolonged to cause cerebral ischemia. However, an important correction recognized another mechanism responsible for Adams-Stokes seizures, namely, transient ventricular fibrillation.

Schwartz, Orloff, and Fox emphasized that it may be possible to predict clinically the imminent onset of ventricular fibrillation in the course of complete A-V block. The patient may note an increase in the heart rate prior to a syncopal attack and auscultation may reveal frequent interruptions of the slow basic rhythm by short runs of more rapid and weaker beats. These rhythmic disturbances may coincide with pallor or a sensation of lightheadedness.

Electrocardiograms taken during such premonitory periods may show prefibrillatory phenomena which should make one suspect impending ventricular fibrillation. These prefibrillatory phenomena have been noted to have the following characteristics: (1) lability of the basic ventricular rate; (2) appearance of premature ventricular beats, at first singly and then in groups of varying length; (3) appearance of bizarre and deformed ventricular complexes; and (4) finally, the appearance of definite fibrillatory waves.

The various problems in treatment and selection of the drug of choice are illustrated in four cases of heart block accompanied by Adams-Stokes seizures. A-V block was associated with atrial flutter in three of these four cases. This combination is very rare. Jolly and Ritchie, in 1911, reported the first case of this combination of arrhythmias. Jourdonais and Mosenthal surveyed and collected all cases reported up to 1937. These totaled only 29. Since 1937, there have been about forty additional reported cases. The rarity of this combination is further illustrated by the fact that Willius encountered it only once in 40,000 electrocardiograms, and Smith and Smith noted it only three times in 25,000 consecutive electrocardiograms.

These cases illustrate the importance of distinguishing between the two different cardiac mechanisms responsible for initiating Adams-Stokes attacks in a patient with complete heart block: (1) ventricular asystole, and (2) ventricular tachycardia and ventricular fibrillation. Treatment should be guided by electrocardiographic analysis of the causal mechanisms.

Epinephrine has been recommended as the drug of choice when the attacks are due to ventricular asystole and, in patients with this mechanism, the clinical effect of the drug is good if it is administered in sufficient dosage. In recent years, however, there is mounting evidence that, in certain patients, epinephrine may act, not only on the main ventricular pacemaker, but may incite the lower ventricular foci as well. This may precipitate ventricular tachycardia or even fibrillation. Moreover, it is not unusual for the same patient to exhibit one mechanism at one time and another later, ventricular

tachycardia alternating with ventricular asystole. This points up the danger of indiscriminate use of epinephrine in the treatment of Adams-Stokes attacks without frequent electrocardiograms to check the progress of events.

When ventricular tachycardia or fibrillation causes cardiac standstill, the use of quinidine or procaine amide would seem, theoretically, to be advisable for prevention of the attacks. Experience in recent years, however, has shown that there is some danger involved in the use of these drugs. Quinidine may be effective in abolishing ventricular tachycardia but in the presence of complete heart block, bundle branch block, or intraventricular block, it may precipitate ventricular fibrillation or asystole. Similarly, procaine amide may be capable of stopping ventricular fibrillation by its depressant action on the ventricular myocardium. At the same time, however, it depresses the rhythmicity of the heart and the region of the junctional tissues which may, after termination of the fibrillation, cause ventricular standstill. In certain instances, procaine amide may, in the presence of heart block, induce ventricular fibrillation.

Isuprel (Isopropyl Nor-Epinephrine) has a stimulating effect on the active ventricular pacemaker of the heart without inciting the lower potential ventricular foci at the same time, and therefore, in contrast to epinephrine, does not predispose the heart to ventricular fibrillation or tachycardia. Furthermore, when administered to patients with Adams-Stokes attacks as associated with ventricular tachycardia or fibrillation, isuprel not only has no apparent deleterious effects but also may aid in preventing recurrence of attacks by stimulating the higher rhythmic centers of the heart. Moreover, unlike quinidine and procaine amide, it does not have a depressant action on the junctional tissues or myocardium. Indirectly, by increasing the rate of effective heart beats and, therefore, the total duration of the refractory period of the ventricular myocardium, isuprel may make ventricular fibrillation less likely. For these reasons, isuprel may be considered the safest drug for use in the Adams-Stokes syndrome when the exact cardiac mechanism of the attack cannot be established electrocardiographically or when both mechanisms are observed to operate in rapid succession in the same patient. In contrast to other sympathicomimetic drugs, isuprel has little or no pressor action. Consequently it may be used in patients with marked hypertension when ephedrine or epinephrine may be dangerous. (Robbin, S. R., Goldfein, S., Schwartz, M. J., and Dack, S., Adams-Stokes Syndrome: Am. J. Med., 18: 577-590, April 1955)

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The printing of this publication has been approved by the Director of the Bureau of the Budget, June 23, 1952.

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## Parenteral Reserpine in Treatment of Hypertensive Emergencies

The treatment of hypertensive emergencies usually requires a potent drug which will promptly reduce the blood pressure. The condition of the patient and the necessity for a rapid response usually make the oral route of drug administration inappropriate. As a result, the primary problems in therapy are those related to the parenteral route of drug administration and to the use of potent compounds which may produce an excessive reduction in blood pressure. These aspects have, heretofore, necessitated close supervision of the administration of these drugs. Veratrum alkaloids, when administered intravenously, are probably the most potent agents for reducing blood pressure in hypertensive patients. Their effect is as marked in the recumbent as in the upright position, a characteristic which makes them particularly suitable for the unconscious or bedfast patient. It is always possible to reduce a markedly elevated blood pressure within 10 to 20 minutes with an intravenous infusion of alkavervir (Veriloid). However, the disadvantages to this route of administration are that constant supervision of the rate of infusion is required, excessive hypotension is possible, and the distressing side-effects of nausea and vomiting are not infrequent. The inconvenience of prolonged therapy of this nature has led to the use of veratrum alkaloids intramuscularly. The results have shown less consistent and reproducible blood pressure effect than after intravenous administration. However, less nursing care is required.

Three groups of hypertensive patients were treated with parenteral reserpine on a short-term basis. The first group consisted of 14 patients with severe progressive hypertensive cardiovascular disease. The second group consisted of 6 patients with toxemia of pregnancy, 4 with severe pre-eclampsia, and 2 with benign hypertensive vascular disease and associated severe pre-eclampsia. The third group consisted of 8 patients of pediatric age with acute glomerulonephritis.

The results achieved in the three groups of hypertensive patients indicate that reserpine, when administered parenterally, is a relatively potent antihypertensive agent. It appears as though there are few hypertensive patients who do not obtain a significant depression in blood pressure. This antihypertensive potency is manifested in the recumbent as well as in the upright position, an attribute of considerable importance in the acutely ill and bedfast patient. The slow decrease in blood pressure which occurs and the relatively rare instances of excessive hypotension allow effective and safe therapy without particularly close supervision by medical and nursing personnel. If blood pressure reduction is desired in less than two hours, reserpine should not be used except in combination with a more rapidly acting agent, such as hexamethonium, pentolinium, or veratrum.

The treatment of hypertensive emergencies with reserpine by the parenteral route would seem to be most useful on a short-term basis after which the therapy can be converted to the oral route. Early conversion is desirable because the blood pressure reduction, which has been established by parenteral reserpine, is slowly lost after it is discontinued. This allows time for the titration of a more potent oral drug without losing blood pressure control. The procedure for administration of reserpine parenterally in these cases is best determined on the basis of the blood pressure response obtained, because it varies in degree and duration in different patients. The most effective results were achieved when patients were placed on a regular schedule after the initial injection on the basis of the intensity and duration of the initial blood pressure response. It usually consisted of a 6- to 12-hour schedule and a dose of 2.5 to 5 mg. The schedule and dose were later adjusted to obtain the desired blood pressure levels in so far as it was possible.

The side-effects tend to become more frequent and prominent as the dose or frequency of administration of reserpine is increased. Tolerance to the sedative effect usually becomes evident after a few days of therapy at a constant dose and frequency of administration, but an increase in these will usually elicit more evident sedation. Muscle tremors and other manifestations, suggesting a Parkinson's syndrome, may appear after larger doses (5 to 10 mg.) given at frequent intervals, but these disappear slowly after a decrease in the dose or frequency of administration or after discontinuation of therapy. (Hughes, W.M., Moyer, J.H., and Daeschner, W.C. Jr., Parenteral Reserpine in Treatment of Hypertensive Emergencies: Arch. Int. Med., 95: 563-577, April 1955)

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## Effects of Chlorpromazine in Psychiatric Disorders

Since becoming commercially available in the United States in May 1954, chlorpromazine (Thorazine) has rapidly achieved widespread usage to a degree seldom accorded a new drug. A rapidly accumulating literature, particularly from Europe where the drug was first introduced, contains reports of its employment in almost every field of clinical medicine. Nevertheless, its ultimate place in therapeutics remains to be determined.

Appraisal of any substance, in regard to effects on psychic functions, always presents certain difficulties because of the fluidity of diagnostic criteria in psychiatry and the impossibility of accurately quantifying results. In the case of chlorpromazine, these factors have been complicated by what appears to be an unusually broad spectrum of application, wide variability of response, and often, incomprehensible effects. The range of results

has, in fact, been so wide as to indicate that exceptionally prolonged study will be required before definitive conclusions concerning its efficacy can be reached. This article, therefore, is intended as a report of relatively early clinical observations and impressions of the utility of chlorpromazine in the management and treatment of psychiatric disorders, rather than as a detailed statistical analysis of data. Experiences reported in this study cover a period of 9 months, and have been drawn from a series of approximately 1000 cases.

With rare exceptions, psychogenic nausea and vomiting have responded favorably to the administration of chlorpromazine. It was also effective in cases of nausea and vomiting due to physical disease coexisting with psychiatric symptomatology. Specifically, these have included cases of carcinomatosis, pregnancy, acute alcoholic gastritis, and dumping syndrome.

The results of chlorpromazine in the treatment of the so-called functional psychiatric disorders have been highly variable and very individualized, with little uniformity in degree or quality of therapeutic response. Patients with identical diagnostic labels and nearly identical symptom pictures have not necessarily derived identical results. Improvement apparently did not depend on diagnosis, but rather on the presence or absence of certain clinical features in the illness. Thus, the authors found the best results occurring in those cases in which the most prominent manifestations have been (1) agitation, (2) anxiety, or (3) aggression.

The authors' experience in the use of this drug in organic psychiatric states has been limited to the treatment of post-alcoholic delirium tremens, agitated senile-arteriosclerotic psychoses, post-encephalitic psychoses, and post-traumatic personality disorders.

The use of this drug in delirium tremens has been very encouraging with strong indication that the duration of delirium is materially reduced when the drug is used. In each case, the drug was used in conjunction with the usual routine of fluid-glucose, electrolyte replacement, diet, therapeutic vitamin regimens, and anticonvulsant drugs. The necessity for administering barbiturates and paraldehyde has almost been eliminated, thus obviating the possibility of replacing alcoholism with habituation to these sedatives.

Very satisfactory results were obtained in the management of senile and arteriosclerotic patients manifesting protracted agitation or periodic excitement. Sedation of the aged patient often poses a difficult problem. Barbiturates occasionally aggravate excitement, effects may be unsustained, or such large amounts are required that their use is accompanied by risk of respiratory depression. In the aged patient, only small amounts of chlorpromazine have been required to produce a tranquilizing effect. Reduction in hyperactivity was, unfortunately, the only improvement obtained in these cases, the mental status remaining otherwise unchanged except where malnutrition, as a result of refusal to eat, was a factor.

The side-effects of chlorpromazine are numerous and varied, and have appeared in one degree or another in almost every patient to whom the drug has been administered. Although temporarily distressing to the patient, they have not necessitated discontinuation of treatment unless extremely severe. Most appeared early and were independent of the dosage level. However, side-effects of a different character developed 2 or 3 weeks after treatment had begun in approximately 10 to 15% of the patients. In contrast to the early side-effects which were of temporary duration, the later side-effects tended to be persistent and could more nearly be correlated with the increasing dosage.

The most common subjective complaints noted during the early phases of treatment included dizziness related to postural changes, profound and often annoying weakness, lethargy, dryness of the mouth, and nasal congestion. Less common, but not infrequent, were a burning sensation in the esophagus, nausea, vomiting, and constipation.

It is believed that many failures with chlorpromazine can be attributed to the fact that inadequate dosages are used. In this series, effective dosage for neurotics has been in the range of 200 to 600 mg. daily, whereas psychotic patients have generally required 400 to 800 mg. daily. As much as 2250 mg. daily has been administered without toxic effects. Complications involving widely dissociated organ systems have been observed, but all have proved to be benign, despite often immediately alarming proportions. Fatal agranulocytosis has recently been reported but has not been observed in this series. (Cohen, I. M., Effects of Chlorpromazine in Psychiatric Disorders: Am. J. Med. Sc., 229: 355-362, April 1955)

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## Breast Self-Examination

Over four years of experience with a public education program, designed to establish breast self-examination as a health practice among women, indicate that the program is, and will continue to be, definitely worthwhile in promoting the early detection of breast cancer. This is said with the realization that a full assessment of its value is not yet, and may never be, possible. It is known, however, that public reception of the program has been uniformly favorable, that the program has reached directly some seven million women, and that evaluation studies have shown encouraging results.

The program, a joint activity of the National Cancer Institute of the Public Health Service and the American Cancer Society, was initiated for the purpose of alerting the public to the problem of breast cancer, its extent, and the possibility of control, with the ultimate objective of reducing mortality from this disease.

The prevalence of breast cancer is a matter of grave concern in the United States. It is the second most common form of malignant disease among women. Statistical studies indicate that, according to present rates, 4% of all women who reach the age of 35 years will die of this disease. Although it occurs in an organ readily accessible to direct examination, only 2 of every 5 cases are diagnosed while the growth is localized. Nearly 19,000 women died of breast cancer in this country in 1950, many of them, perhaps, needlessly. Because there is a correlation between the time of onset of the disease, and to some extent, the size of the growth and the final prognosis, a program of public education to establish a health habit contributing to early diagnosis was strongly indicated.

The motion picture was selected as the principal medium for the educational project because it would insure uniform presentation of technically accurate information. It was supplemented by printed materials containing diagrams and directions for the approved examination procedure and information about the film. These materials are made available for distribution in connection with showings of the film, and additional information is provided through talks by physicians and nurses.

The film shows an actual demonstration of the breast self-examination procedure to a patient by her physician, followed by scenes in which the woman is carrying out self-examination according to his instructions.

The film emphasizes the importance of this health practice to the control of breast cancer. In the story, the patient is first seen at a woman's club listening to a physician lecture on cancer of the breast. The gravity of the breast cancer situation and the importance of early diagnosis are brought out. It is emphasized that any abnormalities discovered through self-examination should be referred immediately to a physician. Women are advised not to think of cancer too much or to examine themselves too frequently, but to be alert to the problem.

Constituting a new approach to this kind of educational effort was the project in Iowa in which the entire state was "saturated" with showings of Breast Self-Examination.

The 1950 census for Iowa indicated that, out of a total population of 2,600,000 there were 590,000 women in the state over 35 years of age and 300,000 over 45 years of age. Because breast cancer is most prevalent in women over 45, the figure 300,000 was set as the goal to reach in the film showings.

For almost two years the film was shown in Iowa. When snows blocked the roads in the winter of 1951, women rode farm tractors to schoolhouses and halls to see it. The executive director of the Iowa division of the American Cancer Society appraised the project as the greatest educational program ever experienced in the field.

A total of 289,000 women saw the film, 96% of the 300,000 goal or 49% of the total female population over 35 years of age in the State of Iowa. Forty-eight percent of them were 45 years or older.

About a year after the showings, an evaluation of the Iowa project was made. Questionnaires were sent to a sample 3000 women who had voluntarily registered. Over 1300 replied, representing 13.6 of every 10,000 women in the state over 35 years of age. The proportion of women between 35 and 54 in the sample was larger than the proportion in the general population; hence, the percent at risk was somewhat greater. Eighty percent of the sample group responding were housewives, and the same percentage were married. Twenty percent lived in the city; 40% in smaller towns; and 40% in the country.

Ninety-two percent of the 1300 women stated that they had examined their breasts as a result of seeing the film, 47% stating further that they had continued the practice. Nine percent said they had detected some abnormality, and in this group seven cancers were found. When the women were asked if they thought this educational program, and especially the film, worthwhile, 94% replied in the affirmative and only 0.4% in the negative. The others failed to respond.

Another evaluation of the film was made by members of the staff of the Yale School of Public Health in cooperation with the local cancer society in 1952. For this study, a sample of 600 women in New Haven, Conn., a city of 250,000, was selected. Of the 600 women, 547 agreed to answer a questionnaire and 225 actually did so.

Eighty-six percent of the 225 women who replied were married. Seventy-seven percent stated that they had practiced breast self-examination at least once, and 60% reported that they did it as a regular health habit. The results in case finding were not conclusive, because for each 5-year period since 1940, the number of patients with breast cancer, coming to hospitalization in New Haven while the growth was still localized, had increased. Although this might be interpreted as indicating a trend toward earlier detection, the fact remains that 77% learned the technique of breast self-examination, and 60% established the practice as a regular habit after seeing the film.

A similar study was undertaken by a group of physicians in Baltimore, Md. Approximately 6 months after a series of showings of the film in that city in 1952, interviews were conducted with nearly 2400 women who had seen the picture and participated in the ensuing discussion with the attending physician. The composition of this group as to color and age was approximately the same as that of the adult female population of the city.

The answers given indicated that only 7.8% examined their breasts before seeing the film, whereas 80.7%, or 1900 of the 2400, had done so

occasionally or frequently since seeing it; 33% of these 1900 women practiced breast self-examination monthly as recommended. Married women, nonwhite women, and women with the highest educational attainments responded best to this educational technique. Women who had a previous history of breast disease were less responsive. Acceptance of the principles and practice of self-examination was highest in early adult life and lowest in later life. The importance of early detection and the method of examination were rated by the group as the most valuable lessons. Only 6% of the women said they had learned little or nothing from the film. Three percent discovered abnormalities through self-examination, and 24% consulted their physicians after seeing the film. Only 110 of the 2400 had had breast operations before seeing the picture, but within 6 months after seeing it, 15 were deemed by their physicians to have conditions warranting surgery. Fortunately, most of these women were found to have benign tumors. Three cancers of the breast were discovered, an incidence three times greater than expected for a group of this size over this period.

The conclusion of the investigators was that the showing of the film, with the associated physician-audience discussion, was an effective method of teaching the public the principles of early detection of breast cancer by self-examination.

It is too early to evaluate the case-finding possibilities of this program to promote breast self-examination as a health habit among women. The evaluation studies which have been made, limited though they are, indicate, however, that a number of women who have seen the film, and participated in the discussions following its showing, are practicing breast self-examination. Over 7 million women have seen the film in the past 4-1/2 years--four times as many people as have seen any other health film--and, in what seems to be an upswing of interest during the last year and a half, one and one-half million women saw it in 1953. The total influence upon these people, and upon others with whom they may associate, can never be calculated. In the certainty that Breast Self-Examination can profoundly effect efforts toward the successful control of breast cancer, this educational material will continue to be offered to the women of this and other countries. (Kaiser, R. F., A Special Purpose Health Education Program: Breast Self-Examination: Pub. Health Rep., 70: 428-432, April 1955)
(Note: See Medical News Letter, Vol. 19, No. 8 page 16, 18 April 1952)

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## Tetanus Prophylaxis

True prophylaxis of tetanus lies in the prevention of injuries. Because the complete attainment of this goal is likely to remain beyond human reach, even in times of peace, the practical concept applies to the prevention of tetanus in those who are injured.

Fortunately, tetanus is of rather infrequent occurrence. A recent study indicates that the case rate of the past 25 years has been one per 200,000 of population per year in a metropolitan area. While no data are available on the number of injuries, trivial and otherwise, incurred by 200,000 people in a year, it must be a very large figure. Tetanus in civilian life is usually a complication of a relatively minor injury such as a puncture wound of the foot, a wood splinter entering the tissues, or of an injury such as a blank cartridge blast or the explosion of a cap. It has seldom been reported as a complication of a major injury, such as a compound fracture or a penetrating wound of the chest or abdomen.

In addition to the veterans of the U. S. Armed Forces, an increasing number of children throughout the United States have been actively immunnized against tetanus. A lack of knowledge as to the duration of the immunity resulted in the adoption of various arbitrary rules of procedure for the care of such individuals when injured. However, Turner, Stafford, and Goldman have shown that most individuals who have been actively immunnized, retain a measurable level of tetanus antitoxin in their sera for at least as long as 11 years after the most recent booster injection. Furthermore, these individuals all respond actively and rapidly to a new booster injection of toxoid. Whether this immunity is permanent or not cannot be decided on a factual basis for many years. It would seem clear, however, that this valuable health asset now enjoyed by many millions of Americans can be preserved with certainty by a booster injection of tetanus toxoid at intervals of 5 or even 10 years.

If the present excellent policy of administering to children the combined diphtheria-tetanus toxoid is continued, eventually nearly all Americans will possess active immunity against tetanus. It is believed that the following scheme constitutes the most satisfactory routine for the treatment of patients who have incurred injuries which could be complicated by the development of tetanus:

1 Proper surgical care of all wounds should be given with emphasis on measures taken to minimize the opportunity for growth of anaerobic bacteria.

2 A booster injection of 0.5 ml. of fluid tetanus toxoid should be given intramuscularly to individuals known to have received the basic immunizing injections, including all veterans of the U. S. Armed Forces of and since World War II.

3 All other patients to be divided into two categories, those not sensitive to horse serum, as demonstrated by suitable means (the conjunctival test is preferred). (a) Those not sensitive should receive 1500 units of tetanus antitoxin intramuscularly. (b) Those who are sensitive to horse serum should not be given tetanus antitoxin in horse serum. They should receive an injection of 0.5 ml. of fluid tetanus toxoid as the initial step in immunizing them. These individuals should then be observed for

3 weeks, so that if tetanus develops the earliest signs may be detected and prompt treatment instituted. After one month, a second injection of toxoid is given, followed 4 to 6 weeks later by a third injection. These patients are thus safeguarded against future risk from either tetanus or horse serum.

4 Nationwide effort should be made to extend the benefits of active immunization against tetanus to more of the population, particularly to those who live in rural areas and to those who, by virtue of their occupation, are more exposed to injury.

5 It is suggested that public health departments record individual immunizations so that information will be available to the physician treating an injured person.

(Stafford, E. S., Tetanus Prophylaxis: The Duration of Protection from Active Immunization: Surg. Gynec & Obst., 100: 552-554, May 1955)

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## Mediastinal Tuberculosis

The purpose of this article is ot consider the clinical problems associated with tuberculous lesions of the mediastinum. The discussion encompasses: (1) clinical manifestations, (2) diagnostic features, and (3) treatment of certain disorders due to mediastinal tuberculosis. The effects of mediastinal tuberculosis on the bronchopulmonary structures, the thoracic vascular organs, the esophagus, and the tuberculous lesions which produce no significant symptoms are discussed. Tuberculosis of the myocardium is not considered because numerous authoritative articles, which deal with this type of disease, have appeared in the literature.

Mediastinal tuberculosis produces disorders which are characterized by chronicity and by their actual or potential seriousness. Enlarged lymph nodes due to tuberculosis are of relatively common occurrence, but the harmful potentialities of these lesions have been accorded only moderate emphasis in the literature. Suppurative pulmonary disease is not an uncommon sequelae of this form of tuberculosis and it may assume various forms. Compression of the lumen or erosion into a bronchus by a tuberculous node may produce a variety of serious conditions, including severe hemoptysis, atelectasis, recurring pneumonia, bronchiectasis, and lung abscess.

The symptoms in the patients with tuberculosis of the mediastinum may assume one or more of the following forms: chronic cough, recurrent hemoptyses, general debility with or without associated chest pain, a single acute pneumonic episode, recurrent febrile episodes, or a clinical picture simulating bronchogenic carcinoma.

Involvement of the mediastinum with tuberculosis can produce effects which are secondary and which often present a confusing clinical picture

unless the primary cause, tuberculosis, is considered and attempts are made to discover its presence. The clinical appearance produced by mediastinal tuberculosis depends upon which of the anatomic structures may be involved by the tuberculous process. Certain anatomic relationships in the mediastinum allow these adverse effects to occur from tuberculous involvement. Also, not only the acute inflammatory process but even the healing phase may produce undue sequelae by cicatrization. The tracheobronchial passages, the mediastinal vascular structures, the esophagus, the heart, and pericardium may separately, or in combination, be involved by the mediastinal tuberculous process. There are, moreover, mediastinal tuberculous lesions which are of significant size to be recognized on chest roentgenograms or at thoracotomy, but which are asymptomatic at least at the time of their first recognition.

The effects on these various mediastinal structures may be produced by extrinsic, erosive, or intrinsic involvement. The effects on the tracheobronchial tree may lead to various forms of pulmonary suppurative disease and/or atelectasis. Thus, the attention of the physician may be directed to the secondary effect at the risk of overlooking the primary cause, mediastinal tuberculosis.

Diagnostic procedures of each type of involvement are sometimes quite expensive before the nature of the process is understood. These include bronchoscopy, special roentgenographic techniques, angiocardiography, and even exploratory thoracotomy.

The treatment of tuberculous disease of the mediastinum is concerned with treatment of the tuberculous infection (the primary problem) and with other treatment directed to the secondary effects whether these are bronchial, vascular, or esophageal in nature. Specific antituberculous measures and, in addition, surgical measures are combined. Additional forms of therapy may be needed for correction of other forms of inflammatory and obstructive phenomena. (Lyons, H. A., and Storey, C. F., The Problem of Mediastinal Tuberculosis: Am. Rev. Tuberc., 71: 635-653, May 1955)

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## Medical Department Workload

The workload of the Medical Department declined moderately in calendar year 1954. The average number of persons on the sicklist was 15% lower than in 1953. This resulted from a decrease in admissions to hospitals and infirmaries and, consequently, a drop in the number of occupied beds in both types of facilities. Several factors contributed to the lighter workload. Among these were: (1) improvement in the general morbidity picture; (2) reduction in the strength of the Navy and Marine Corps; (3) improving and broadening of the measures of preventive medicine; and

(4) increase in the treatment of patients with certain conditions on an outpatient basis rather than as inpatients due to recent developments and findings relating to certain chemotherapeutic agents. Another factor of lesser importance was a sharp reduction in the number of battle casualties still requiring hospital care.

The primary purpose of the Navy Medical Department is to provide care to active-duty members of the Armed Forces. However, when medical facilities and personnel are available, treatment is rendered to various other groups whose care is authorized. Among these are dependents of military personnel, retired military personnel, and Veterans' Administration beneficiaries.

The Navy has five principal types of medical treatment facilities: (1) hospitals, which provide both inpatient and outpatient services as well as definitive and specialized care; (2) hospital ships, which are in reality complete hospitals afloat; (3) infirmaries, which provide outpatient services and also inpatient care for patients whose prognosis indicates an early return to duty; (4) dispensaries, whose primary function is to provide outpatient care; and (5) sickbays aboard ships, which correspond in function to infirmaries. In addition, some naval personnel are treated in various non-naval medical facilities--those of the Army, Air Force, other Federal agencies and civilian hospitals.

The principal facilities maintained by the Navy for inpatient care are hospitals and infirmaries. During 1954, there were 29 naval hospitals--25 in continental United States and 4 in oversea areas--and 3 hospital ships in operation. However, 2 of these facilities were closed during September; the hospital at Coco Solo in the Panama Canal Zone was disestablished on 1 September 1954 and transferred to the Canal Zone Government, and one of the hospital ships (U.S.S. Repose) was deactivated 30 September 1954. In addition, there were about 100 infirmaries in operation at the end of the year, of which 28 were located in noncontinental areas.

During calendar year 1954, there was an average of 16,888 persons on the sicklist in naval medical facilities. Over three-fourths of these were Navy and Marine Corps patients. In 1954, there were fewer Navy and Marine Corps patients on the sicklist than in 1953, however, the number of supernumeraries on the sicklist increased slightly.

The monthly trend in the end-of-the-month census was about the same in 1954 as in 1953. In both years the peak load occurred in January, with a gradual decline thereafter. However, each month of 1954 was lower than than the corresponding month of the previous year. (Statistics of Navy Medicine: Vol. II, page 12, April 1955)

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## Rehabilitation

It is well known that long-term patients in the Navy who are not being returned to duty under any circumstances are expeditiously transferred out of the naval medical system into the Veterans Administration as early as possible consistent with the best interests of the patient, dependent upon his physical condition at the time. Rehabilitation is quite active concerning the patient returning to duty. Usually the naval patient is far away from home and rehabilitation at home and in a civilian community is not available to him.

The Subcommittee on Hospital Services of the Health Resources Advisory Committee of the Office of Defense Mobilization has made certain recommendations concerning the utilization of health, manpower, and facilities, and has indicated that measures should be initiated to reduce personnel requirements for the care of patients with long-term illnesses.

These recommendations include: (1) Requesting deans of medical schools through the Association of American Medical Colleges to consider ways and means of indoctrinating medical students in the philosophy of rehabilitation; (2) Requesting the directors of university programs in hospital administration to give greater emphasis to the philosophy of rehabilitation; (3) Requesting the American Hospital Association to promote in publications the philosophy of rehabilitation and recognition of the needs for comprehensive programs under centralized or coordinated management; (4) Requesting directors of nursing programs to consider ways and means of indoctrinating nurses in the philosophy of rehabilitation.

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## Commendation

At a meeting of Naval Reserve Dental Companies #4-2 and #4-10 on April 29, 1955, at Pittsburgh, Pa., LCDR W. A. George, DC USNR, Commanding Officer, Naval Dental Reserve Company #4-10, School of Dentistry, University of Pittsburgh, received a letter of commendation from RADM B. W. Hogan, MC USN, Chief of the Bureau of Medicine and Surgery. This letter read as follows:

> "It has come to my attention that you have made exceptionally meritorious contributions to the Navy while serving as Commanding Officer of Naval Reserve Dental Company 4-10, which is located in the University of Pittsburgh School of Dentistry. I have been advised that, during the period of 14 September, 1953 to 29 April 1955, you displayed outstanding leadership, skill,

and loyalty in organizing and serving as the first Commanding Officer of Naval Reserve Dental Company 4-10. The success of this Company in attracting more than forty dental students to its rolls, and inspiring many of them to active duty careers in the Navy Dental Corps after graduation, has been in a large measure due to your sustained efforts.

It is a pleasure for me, as Chief of the Bureau of Medicine and Surgery, to send you this letter of commendation in recognition of your continued loyalty and outstanding accomplishments in Naval Reserve matters. A copy of this letter will be placed in your official file." (TIO, BuMed)

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## From the Note Book

1 Rear Admiral B. W. Hogan, MC USN, Surgeon General of the Navy, attended a meeting of the Surgeons General of the NATO countries held in Paris, May 4-7, 1955. Following this meeting, Admiral Hogan visited naval medical installations in Italy, Greece, Turkey, Germany, and England. (TIO, BuMed)

2 Rear Admiral I. L. V. Norman, MC USN, Assistant Chief for Personnel and Professional Operations, represented the Navy's Surgeon General at the 36th Annual Meeting of the American College of Physicians held in Convention Hall, Philadelphia, April 25-29, 1955. Admiral Norman also attended the joint meeting of the Regents and Governors of the College and a meeting of the Board of Governors.

3 Captain W. C. Calkins, MSC USN, Chief of the Medical Service Corps, U. S. Navy, visited Harvard University, Cambridge, Mass., April 13, 1955. At the University, Captain Calkins met with faculty members to discuss the two-year graduate course in Business Administration in which six Naval Medical Service Corps officers are currently enrolled. (TIO, BuMed)

4 Rear Admiral H. P. Riebe, DC USN, assumed the duties of Inspector General, Dental, Navy Department, on April 27, 1955. Admiral Riebe is a Fellow in the American College of Dentists, and a member of Delta Sigma Delta and Epsilon Alpha fraternities. He is married to the former Dorothy Edna Osborn of Berkeley, Calif., and they have two sons, Herbert Paul and John Osborn Riebe. (TIO, BuMed)

5 Department of Defense policy regarding fund-raising campaigns: Public Relations News Letter, Vol. 7, No. 7, April 1, 1955: Each year worthy organizations contact the military services requesting special participation, often in the form of publicity stunts for fund-raising drives. Although the causes of these organizations are most worthy, practical considerations prohibit favorable action, particularly in view of the fact that fair practice would necessitate participation in all of the many philanthropic organizations desiring special attention. It is the policy of the D. O. D. to encourage members of the Armed Forces to support worthy philanthropic organizations on an individual and voluntary basis. Participation by special publicity stunts is not considered in keeping with this policy, except when group participation is voluntary and there is no question as to propriety.

6 At the request of the Federal Civil Defense Administration, seven Naval medical training films were recently released by the Department of the Navy for use in the civil defense casualty care program. These films were: "Sucking Wounds of the Chest," MN-7477; "Penetrating Wounds of the Abdomen," MN-7470; "Cricothyroidotomy," MN-7469; "Medical Laboratory Techniques, Serological Techniques, and Venipuncture," MN-9375c; "Use of Whole Blood, Plasma, and Serum Albumin," MN-7335; "Taking a Blood Pressure," NM-1511g; and "Artificial Respiration, the Back Pressure Armlift Method," MN-7484. (TIO, BuMed)

7 The conference of the Directors of the Navy Dental Officer Training Programs, held at the U. S. Naval Dental School, NNMC, Bethesda, Md., concluded its session on May 7, 1955, after considering the intern, oral surgery residency, and advanced training in prosthodontics and periodontics. (TIO, BuMed)

8 Personnel of the U. S. Naval Dental School, NNMC, Bethesda, Md., have developed a set of moulages for use in casualty treatment training. They provide training for casualty treatment of head wounds, chest wounds, abdominal wounds, open and closed fractures, arterial and venous bleeding, and burns. The moulage, which has an adjustable elastic back, is fitted on a volunteer and strapped tightly to him. The vinyl resin moulage is connected by rubber tubing to a central fluid supply which may be adjusted to create a flow of simulated blood, either arterial or venous. Any type of wound can be incorporated in the body sections provided. The moulages will respond to the casualty treatment administered. Although these training aids were developed for use on board ship and at small shore stations, they are readily adaptable to any casualty treatment training programs. (TIO, BuMed)

9 On April 19, 1955, twenty-three foreign medical students from the School of Public Health and Hygiene, Johns Hopkins University, Baltimore, Md., visited the Navy's Bureau of Medicine and Surgery and the National Naval Medical Center, Bethesda, Md. Included in the group were students from Venezuela, Pakistan, Colombia, Philippines, Korea, Chile, Norway, Paraguay, Puerto Rico, Mexico, Brazil, Japan, Italy, India, Egypt, Nationalist China, Afghanistan, and Thailand. (TIO, BuMed)

10 A new medical insignia design has been developed and approved for use by Air Force Medical Service physicians and dentists in the near future. The insignia is a small silver badge with a caduceus, or serpent, entwined on a staff and mounted in its center. The dental badge is identical to the one to be worn by physicians except for a "D" superimposed on the caduceus. The badge will be worn above the left breast pocket. USAF (MC)

11 Dr. T. L. Hill, a member of the staff of the Naval Medical Research Institute, NNMC, Bethesda, was recently presented the Arthur S. Flemming Award.

Sponsored by the Junior Chamber of Commerce, Washington, D. C., the Arthur S. Flemming Awards are designed to give honorary recognition to the ten young men in the Federal Government whose achievements in the scientific and administrative fields have been exceptionally outstanding. (TIO, BuMed)

12 More than 125 Medical Service Corps, Chief Warrant, and Warrant officers attended the Navy's Bureau of Medicine and Surgery Fiscal Conference, held at National Naval Medical Center, Bethesda, April 20-22, 1955. Included in the group were ten Air Force officers, one Nationalist China naval officer, and 77 Naval Medical Department administrative officers from BuMed Field activities. Among the latter were the finance officers of continental naval hospitals, naval dispensaries and dental clinics, and naval medical research facilities; and the administrative or executive assistants to the district medical and the district dental officers of the continental naval districts. (TIO, BuMed)

13 A new department, "Panels in Therapy," has been added to Blood, the Journal of Hematology. This panel is devoted to the practical problems of treating specific hematological conditions and should have particular value for practicing physicians. Specific questions, in addition to the comments of a panel of experts upon a specific problem dealing with therapy and perhaps diagnosis, are also invited; they may be addressed to the Editor of Blood, Dr. William Dameshek, Harrison Avenue and Bennet Street, Boston 11, Mass.

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BUMED INSTRUCTION 6224.4 8 April 1955

From: Chief, Bureau of Medicine and Surgery
To: All Naval Hospitals

Subj: Tuberculous patients in naval hospitals; treatment of

Ref: (a) BuMedInst 6320.5D
(b) Protocols for the chemotherpay of tuberculosis as revised following the 14th VA-Army-Navy Conference (11th Revision 3-15-55)

This Instruction outlines necessary procedures in the management of patients being studied for tuberculosis, and the treatment of those proven to have tuberculosis, in order that they will not have to be excluded from the continuing statistical study of chemotherapeutic regimes by a joint cooperative study of the Veterans Administration, U.S. Army, and U.S. Navy.

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BUMED NOTICE 6230 27 April 1955

From: Chief, Bureau of Medicine and Surgery
To: All Ships and Stations

Subj: Smallpox immunization requirements for travel to, through, and from France

Ref: (a) AlNav 9-55, BuMedNote 6230 of 17 Feb 1955, re subject
(b) BuMedInst 6230.1, Subj: Immunization requirements and procedures

This Notice continues for an additional 90 days the special smallpox immunization requirements of reference (a) for travel to, through, and from France. The continued occurrence of smallpox cases in France necessitates this extension. This Notice became effective on 18 May 1955, the date reference (a) will be automatically canceled and shall continue in effect for 90 days.

BUMED NOTICE 4400 27 April 1955

From: Chief, Bureau of Medicine and Surgery
To: All Stations Holding BuMed Allotments, Except Hospitals

Subj: Analysis of medical and dental stores inventories, and transfers of material

Encl: (1) Format of subject analyses

This Notice desires from each addressee an analysis of inventories and of transfers of medical and dental stores.

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BUMED INSTRUCTION 7110.1 29 April 1955

From: Chief, Bureau of Medicine and Surgery
To: All Stations and Hospital Ships

Subj: Estimates of financial requirements of medical and dental activities

Ref: (a) NavComp Manual, Paragraph 023304
(b) BuMedInst 7303.4 (current revision)

Encl: (1) Sample Format - Estimate of Financial Requirements
(2) Listing of Bureau Control Project Allotment Numbers Applicable to Each Appropriation Subhead Number

The purpose of this Instruction is to provide procedures for preparation and submission of estimates of financial requirements under the appropriations, Medical Care, Navy; and Research and Development, Navy (Medicine). This Instruction cancels BuMed Instructions 7303.9 (NOTAL) and 7303.10 (NOTAL)

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BUMED NOTICE 6150 5 May 1955

From: Chief, Bureau of Medicine and Surgery
To: All Ships and Stations Having Medical Personnel Regularly Assigned

Subj: Standard Form 88 (Report of Medical Examination)

Ref: (a) Art. 23-303(6)(b), item 300, ManMedDept
(b) Art. 23-303(4), ManMedDept
(c) Art. 15-82(7), ManMedDept
(d) Art. 23-303(2), ManMedDept

This Notice informs addressees that it is neither required nor desired that certain copies of the subject report be retained as permanent records.

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BUMED INSTRUCTION 5215.4A 11 May 1955

From: Chief, Bureau of Medicine and Surgery
To: All Ships and Stations

Subj: Manual of the Medical Department, U.S. Navy (NavMed-P-117)

This Instruction sets forth instructions concerning the Manual of the Medical Department as to (a) command responsibility, (b) distribution policy, (c) return of surplus copies, and (d) replacement of defective binders. BuMed Instruction 5215.4 is canceled.

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# PREVENTIVE MEDICINE SECTION

## Communicable Disease Control

### Poliomyelitis

(This review of poliomyelitis was prepared by members of the Commission on Viral Infections, Doctors John R. Paul, William McD. Hammon, and Albert B. Sabin, of the Armed Forces Epidemiological Board as a revision of Army Technical Bulletin Medical No. 193. Certain editorial changes have been made in adopting it for publication in the U.S. Navy Medical News Letter.)

Definition. Poliomyelitis is an acute viral disease. Only a small percent of those infected with the virus develop clinical disease, and the illness is often unrecognized unless associated with flaccid paralysis of various muscle groups. The characteristic clinical picture preceding paralysis is that of fever, headache, vomiting, stiff neck, and stiff back.

Etiology. The virus of poliomyelitis is relative stable, remaining viable in aqueous suspensions of human feces at 0°C for months, and can be preserved for years at temperatures of -20° to 70°C, or in 50% glycerine at 0° to 4°C. It is slowly destroyed by alcohol, is completely resistant to ether, and withstands amounts of chlorine which destroy ordinary bacteria. Strong oxidizing agents destroy the virus, as does heat at pasteurization temperatures, and ultraviolet irradiation.

There are at least three immunologically distinct types, the prototype strains being: Brunhilde, or Type 1; Lansing, or Type 2; and Leon, or Type 3. The host range for all types includes, besides man, chimpanzees and monkeys. Certain strains belonging to Type (Lansing, Y-SK, MEF, Wallingford) also produce paralysis on intracerebral injection into mice and cotton rats. Recently, certain strains of Types 1 and 3 have been adapted to mice by inoculation directly into the spinal cord. A Type 2 strain has also been adapted to embryonated eggs. Strains belonging to all three types grow well in tissue cultures containing certain primate or human cells, and serial passage may produce alterations in host range.

Although all three types of poliomyelitis virus have been isolated from patients in a single epidemic, most epidemics have been associated with Type 1, while Type 2 has been recovered largely from sporadic (often fatal) cases, and Type 3 irregularly in epidemic times. The typing of many strains by tissue culture methods, which is now widely practiced, should provide more accurate data on the distribution of the three types.

Epidemiology.

(1) Historical. In many areas of the world, poliomyelitis has been changing from an endemic disease, largely affecting infants, to a disease which appears periodically in epidemic form. In countries where epidemics are prone to recur, there has been a shift in the age distribution, so that instead of its being an infantile disease, as it was in the 19th century, it has increasingly affected older children and young adults. In certain parts of New England, for example, as many as 35% of the cases now occur in individuals 15 years of age and over. As a result, infections occur more often in men of military age than was true in World War I. An explanation of this evolution is that better sanitation and higher standards of living during recent years seem to have afforded to children of the last generation greater protection from exposure to poliomyelitis virus than was provided children of earlier generations. Serological surveys in which the level of poliomyelitis

antibodies has been measured in various parts of the world support this interpretation. In contrast, it has been found that, in those countries with primitive sanitation and high infant mortality rates, children are exposed earlier and acquire infection, specific antibodies, and immunity to all three types of poliomyelitis virus earlier (i. e., prior to the age of 5 years) than elsewhere.

(2) Mode of Spread. Evidence indicates that ordinarily poliomyelitis is spread by intimate human association, but under certain circumstances, contamination of food, or conceivably other material, can also transmit the virus. Contact infection alone does not explain the striking seasonal incidence of the disease in temperate climates with a peak in summer and early autumn and very low rates during the winter months. In more tropical areas the disease incidence is liable to run a more even course throughout the year. It would seem that during the warm season, either something happens which enormously increases the dissemination of virus in the community, or the resistance of the host is markedly decreased. Available data favor the former point of view. Although the only consistent infective source of the virus is man, poliomyelitis virus has been found during epidemics in local environmental sources, such as sewage, and also in certain insects, including flies and cockroaches. Whether these insects ever play any important epidemiologic role in disseminating poliomyelitis virus is, however, unknown. Certain carriers or situations may be especially dangerous and can give rise to explosive outbreaks in military installations or institutional populations.

(ED: One should always recall that an appreciable quantity of virus is excreted in the feces over a period of weeks or months by both clinical patients and those with inapparent infections. Since the most probable route of transmission is feces to mouth, generally high standards of personal hygiene and sanitation may hinder the rapidity and extent of transmission.)

The ratio of inapparent infections to frank cases is critical to the understanding of the spread of this disease within a community. It has been estimated that in the United States of America only 1 to 2 percent of infections now take the form of frank diagnosable cases, i. e., either paralytic or nonparalytic, whereas by far the majority are either mild (abortive) cases or inapparent infections. Numerically, therefore, the frank cases should play a far less important part in spreading the virus, but there is recent evidence to suggest that patients with paralytic cases excrete larger amounts of more virulent virus than do patients with milder cases and are, therefore, more dangerous.

(3) Geographic Distribution. Poliomyelitis is world wide in distribution, although, as indicated above, its behavior in different parts of the world differs. In some areas, notably tropical and subtropical areas,

where epidemics of paralytic poliomyelitis are rare, the disease is infantile in form, and the reported clinical cases are apt to be few in number. This may not, however, reflect the real situation, largely because of the fact that the fatal infantile cases often escape diagnosis and that most members of the population over 5 years of age are immune. In other areas, such as the United States, Canada, Scandinavia, Australia, and New Zealand, the endemic disease has become associated with periodic epidemics of increasingly high, though irregular, attack rates of clinical disease during the past 25 years.

(ED: It might be postulated, on the basis of evidence so far available, that in those areas of the world where epidemics of clinically recognized poliomyelitis occur most frequently, and particularly where children over the age of 5 years and adults are involved, the actual incidence of infection is lowest. Conversely, where such outbreaks uncommonly occur and paralysis is rare in older children or adults, the incidence of infection is highest. Notable exceptions to such a general rule must be recognized, particularly in the case of certain isolated populations.)

(4) Age Distribution. Where the poliomyelitis viruses are widely disseminated, children are more apt to acquire poliomyelitis infection than are adults. As in measles, this is an expression of childhood absence of immunity. The immunity which develops with increasing age is presumably an acquired one, although unlike measles, such resistance often results from inapparent rather than overt infection. It is easy to see how the age at which people acquire poliomyelitis (or immunity to it) depends largely upon the environment in which they happen to be brought up. In remote isolated communities with little warm weather, such as those in the Arctic, exposure comes seldom and almost all age groups of the native population are apt to be attacked when the virus is introduced into such a susceptible community. In crowded tropical or temperate areas with poor sanitation, exposure comes often and early in life, resulting in the early acquisition of immunity.

(5) Military Epidemics. Several epidemic situations are commonly encountered among military personnel and their dependents. These are: (a) A military post in the United States or elsewhere happens to be located within an area where and when poliomyelitis has become epidemic in the local civilian population. Under these circumstances, case (or attack) rates for poliomyelitis among the military personnel and dependents are not apt to differ from those of the corresponding age groups in the local civilian population; (b) In foreign areas where the sanitation is substandard and poliomyelitis infection in the infantile members of the civilian community is widespread and endemic although the disease is often unrecognized as such. Here the military personnel and dependents can sometimes be regarded as "susceptible immigrants" who have been introduced into an infected, though largely immune, population and may be exposed (unwittingly). Such outbreaks

of poliomyelitis may recur annually in United States military personnel and their dependents, and the case rates are apt to be far higher than those estimated for corresponding age groups in the native population. Furthermore, such "epidemics" have been known to persist over a period of several months. Episodes of this kind have occurred in the Philippines, North Africa, the Orient, and in Hawaii. In such epidemics, attack rates are often higher than has been observed during community outbreaks in the United States, and it has seemed quite apparent that the general risk of infection for susceptible individuals is considerably greater than in the United States; (c) Explosive and usually short outbreaks may involve military personnel. The evidence suggests that under these circumstances the virus is suddenly introduced into the military population in large dosage through the agency of some carrier (or conceivably through some articles of food or drink). Here again, the age specific case rates are apt to be much higher than those in the local civilian population. Furthermore, the epidemic, although severe, seldom lasts longer than 2 or 3 weeks, apparently because, under these circumstances, infection does not spread from "case to case" as readily as in a population of children. Furthermore, experience has shown that infected individuals (in the incubation period) moving to other installations have been the source of new explosive outbreaks.

Pathogenesis and Pathology. The virus probably enters the body by way of the mouth, but how it actually reaches the central nervous system is uncertain. In orally infected chimpanzees, as in man, within a few days after exposure, the virus appears in the throat and in the feces, and also in minute amounts in the blood. In man, this systemic and viremic stage is concomitant either to the later days of the incubation period, or to the minor illness (first phase), and is in advance of the stage at which diagnostic (second phase) symptoms of central nervous system involvement appear, if indeed they occur at all. Virus may persist in the blood for 2 or 3 days and in the throat for about 10 days (including a few days prior to the onset of any symptoms that may occur). Similarly, virus may persist in the intestinal tract for periods of from 1 week to several months, sometimes persisting after all clinical evidences of infection have disappeared.

Although the virus may be recovered from tissues other than those of the central nervous system, extraneural lesions due to poliomyelitis virus are either scanty or not found. When present at autopsy, they consist of hyperplasia of lymphoid tissue, and myocarditis (the specificity of which has not been determined). The characteristic central nervous system lesions of poliomyelitis are in the gray matter of the spinal cord, the medulla, the pre-central gyrus of the cerebral cortex, and the deep nuclei of the cerebellum. Chromatolysis, neuronal necrosis, neuronophagia, and "outfall" of cells occur. Focal and diffuse infiltration of leukocytes and perivascular cuffing are found in areas of neuronal damage.

(1) Predisposing Factors. Various factors either inherent in the host or produced in the host have been regarded as predisposing to the development of paralysis in this disease. Thus it is reasonably well established that poliomyelitis during pregnancy may run a severe course.

Some experience suggests that injuries which may range from a trauma of moderate severity to a fracture may be followed by the appearance of paralysis. Another type of example is the excessive incidence of bulbar paralysis in persons subjected to tonsillectomy and adenoidectomy within the previous months.

There appears to be little doubt that overexertion about the time of onset of the major illness is particularly liable to be followed by severe paralysis.

Of special interest in this connection, is the demonstration during severe epidemic periods of an association between injections of certain types and substances and the subsequent appearance (within a month) of paralysis in the limb injected. For example, there is evidence that during periods of widespread dissemination of virulent virus, injections of combined diphtheria-pertussis vaccines or of arsenicals may have this effect. As one possible explanation, it has been suggested that such injections may through slight, local injury predispose to, or precipitate, paralysis in persons who otherwise might have developed an inapparent, abortive or nonparalytic attack.

(to be continued in next issue of Medical News Letter)

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## Insect and Rodent Control

### Aerosol Insecticide

In the past, use of aerosol insecticide has not been encouraged because of the former relatively high cost of this item. Very recently, the price was reduced so that now the charge for 16 ounces of insecticide (GT51-G-120-31) is $0.55. Also, there is no longer a charge for the cylinder (GT51-C-2031-10), which is now nonreturnable. In addition, nearly all of the existing stocks have been reworked completely during recent months and should be in excellent condition. Wide use of this biologically effective item is now urged.

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## General Sanitation

### Quarantine Regulations for Naval Vessels and Aircraft of the Armed Forces

According to ComServPac Information Bulletin, Force Medical Section, Cumulative Edition 1953, the most frequent misunderstandings of General Order No. 20, noted by the Base Quarantine Officer, Naval Base, Pearl Harbor, T. H., were:

(a) Hospital corpsmen certifying pratique while on duty independent of a medical officer.

Comment: Only ships with medical officers on board may certify pratique. However, when ships are traveling in groups or convoys and a medical officer is on board a ship in the group, that medical officer may certify pratique for all ships immediately under his cognizance.

(b) Failure to obtain prior to departure a port sanitary statement (bill of health).

Comment: Port sanitary statements should be obtained from each foreign port visited and from domestic ports when the next port of call is undetermined or foreign. Port sanitary statements are not required of ships plying between domestic ports. The Trust Territories have been declared domestic ports.

(c) Outdated deratization certificate or none at all.

Comment: All deratization certificates and Port Sanitary Statements should be retained in the medical department files. Although deratization certificates are not required of vessels plying between domestic ports, ComServPac desires all vessels to maintain a current deratization certificate. Commanding officers are advised to obtain deratization certificates while assigned overhaul, periods of replenishment, dockside upkeep, or tender availability. Many ships delay request for inspection until departure for extra-continental area is imminent. A minimum of 5 days should be allowed for processing a request for inspection. The Manual of the Medical Department requires that a deratization certificate be on board all vessels visiting a foreign port.

(d) Failure on the part of ships that have met pratique requirements and have certified pratique to deliver a quarantine declaration.

Comment: When pratique is certified, it is mandatory that a quarantine declaration be delivered, by hand, to the Port Quarantine Officer.

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## Vegetable Produce in the Far East

Outbreaks of diarrhea, food poisoning, and intestinal parasitic infestations frequently occur among personnel of naval ships calling at the port of Hong Kong. Many cases undoubtedly result from consumption of unsafe food in establishments ashore. However, other cases do result from food, mainly fresh leafy vegetables, purchased locally and used aboard ship. Absolute reliance should not be placed upon the assurance of merchants and vendors that their produce is "inspected" or "from an approved source." The term "inspected" merely indicates that, in the opinion of the inspector, the produce was acceptable at the time of inspection. Subsequent improper storage or handling during transportation (temporary storage on dirty docks, transporting through polluted harbors in open boats, and handling by infected personnel) can render wholly unacceptable that which originally was clean food. This is particularly true in areas where sanitation standards are low, i. e., the Far East.

The term "from an approved source" is generally used to indicate that the food was grown or purchased under conditions favorable to acceptable standards of quality and cleanliness. In areas where "night soil" is used to fertilize produce, a certificate of chemical fertilization should be rejected. From past experience, it has been found that occasional lots of produce, even though "certified," were, in fact, grossly contaminated, possibly as the result of surface drainage from adjacent farm areas which were contaminated.

It is a generally accepted practice in the Far East to wash vegetables and then to immerse them in a "disinfecting solution." The effects of chemical agents, particularly chlorine, upon cysts of Endamoeba histolytica, (the causative agent for amebic dysentery) have received considerable attention from the epidemiological standpoint. It has been determined that the effectiveness of chemical agents varies greatly with the pH, the temperature, and the amount of organic matter present. They are not, therefore, 100% effective in their cyst-killing properties.

Medical representatives in ServPac ships operating in the Far East recommend that: (1) the utmost care be exercised in selecting a source of supply for vegetables; (2) fresh vegetables be afforded proper handling and protection from contamination during transportation; (3) the purchase of vegetables in the Hong Kong area be discouraged unless the vegetables are to be cooked before serving. (ComServPac Information Bulletin, Force Medical Section, Cumulative Edition 1953)

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## Salmonella in Fresh and Smoked Pork Sausage

The frequent recovery of salmonellae from pork sausage offered for sale in retail stores led to an investigation of the prevalence of salmonellosis

in animals and of salmonellae in the environment of abattoirs. Of the 12 most common types of salmonellae found in swine and in the environment of abattoirs, 9 are also among the 12 most commonly found in man in Florida.

In three investigations of food poisoning outbreaks, the same types of salmonellae were isolated from both the sausage and the ill persons. The importance of pork products, including sausage, as a possible source of salmonellosis in man warrants emphasis. (J. Infect. Dis., Nov-Dec., 1954, Mildred M. Galton, Willa D. Lowery, and Albert V. Hardy, Florida State Board of Health, Jacksonville, Florida)

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## Change of Address

Please forward requests for change of address for the News Letter to: Commanding Officer, U.S. Naval Medical School, National Naval Medical Center, Bethesda 14, Md., giving full name, rank, corps, and old and new addresses.

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